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HEALTH RELATED QUALITY OF LIFE AND ITS DETERMINANTS AMONG THE ELDERLY IN BENIN CITY, EDO STATE, NIGERIA

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Abstract

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Background: Population ageing has become an important public health issue worldwide, particularly in low- and middle-income countries where healthcare and social support systems are often inadequate. Health-related quality of life is a multidimensional measure of well-being that reflects the physical, psychological, social and environmental effects of health on an individual's daily life.

Objective: This study aimed to assess the health-related quality of life and its determinants among elderly persons in Benin City, Edo State, Nigeria.

Methods: A community-based cross-sectional analytical study was conducted among 642 elderly persons aged 60 years and above selected using a multistage sampling technique. Data were collected using a pre-tested interviewer-administered structured questionnaire assessing the physical, psychological, support and social relationship, and environmental domains of HRQoL. Composite HRQoL scores were categorized as good ($\geq 50\%$) or poor ($< 50\%$). Data were analyzed using IBM SPSS version 25. Associations were assessed using Chi-square or Fisher's exact tests, while binary logistic regression identified independent determinants of HRQoL. Statistical significance was set at $p < 0.05$.

Results: Overall, 630 (98.1%) respondents had good HRQoL. Good scores were recorded in the physical health, psychological health, environmental health and support/social relationship domains by 590 (91.9%), 581 (90.5%), 563 (87.7%) and 470 (73.2%) respondents, respectively. Overall HRQoL was significantly associated with age, marital status and work history. Following logistic regression, respondents without formal education were less likely to have good HRQoL, while those who had ever worked were more likely to have good HRQoL.

Conclusion: The majority of elderly persons in Benin City had good health-related quality of life. Educational attainment and work history were independent determinants of HRQoL, while social relationships represented the weakest domain. Interventions that improve educational opportunities across the life course, strengthen economic security and enhance social support are essential to promote healthy ageing and improve the quality of life of older adults.

Keywords: Health-related quality of life; elderly; ageing; determinants; Benin City; Nigeria.

Introduction

Population ageing is a major demographic phenomenon that is reshaping societies across the world. Improvements in healthcare, nutrition, sanitation, and socioeconomic conditions have led to increased life expectancy and declining mortality, resulting in a rapidly expanding elderly population. According to the United Nations, the global population of persons aged 60 years and above is projected to increase from about 541 million in 1995 to approximately 2.1 billion by 2050. Similarly, the World Health Organization estimates that by 2030, one in every six people worldwide will be aged 60 years or older, with the greatest increase occurring in low- and middle-income countries.¹ In Nigeria, the proportion of older adults continues to rise as life expectancy improves, creating new public health and healthcare challenges.

As individuals age, they become increasingly susceptible to chronic non-communicable diseases, functional limitations, cognitive decline, sensory impairments, and social vulnerability, all of which may adversely affect their health-related quality of life (HRQoL). Health-related quality of life is a multidimensional concept that assesses the impact of health on an individual's physical, psychological, social, and environmental well-being. Unlike traditional health indicators that focus primarily on morbidity and mortality, HRQoL provides a broader evaluation of how health conditions influence daily functioning, independence, and overall life satisfaction.

Several factors have been identified as determinants of HRQoL among older adults. These include sociodemographic characteristics such as age, sex, education, marital status, occupation, and income, as well as health-related factors including chronic illnesses, disability, physical activity, nutritional status, and mental health. Environmental conditions, access to healthcare, family support, financial security, and social participation also play important roles in determining quality of life during old age.

In Nigeria, the growing elderly population is confronted with inadequate geriatric healthcare services, weak social security systems, increasing poverty, and changing family structures resulting from urbanization and migration. These challenges may compromise the quality of life of older adults, yet community-based evidence on HRQoL and its determinants remains limited. Understanding these determinants is essential for developing effective interventions, informing health policy, and promoting healthy ageing. Therefore, this study assessed the health-related quality of life and its determinants among the elderly in Benin City, Edo State, Nigeria.

Methodology

Study design, setting and study population

This was a community-based cross-sectional analytical study conducted among elderly persons aged 60 years and above residing in urban and rural communities in Benin City, Edo State, Nigeria. The study was conducted over an 18-month period, encompassing the preparatory, data collection, data analysis, and report writing phases. Benin City comprises three Local Government Areas (LGAs)—Egor, Ikpoba-Okha, and Oredo which include both urban and rural wards. Eligible participants were elderly persons who had resided in the study area during the study period and provided written informed consent. Individuals, who were critically ill, cognitively impaired or mentally unstable to the extent that they could not provide reliable responses, as well as those who declined participation, were excluded.

Sample size determination and sampling technique

The minimum sample size was calculated using the formula for estimating a single proportion. After adjusting for a 10.0% non-response rate, a final sample size of 642 elderly persons was obtained. A multistage sampling technique was employed. In the first stage, two wards were selected from each of the three LGAs by simple random sampling using balloting, giving a total of six wards. In the second stage, two enumeration areas were selected from each chosen ward by simple random sampling, resulting in twelve enumeration areas. In the final stage, each selected enumeration area served as a cluster, and all eligible elderly persons in listed households who met the inclusion criteria and consented to participate were recruited until the required sample size was achieved.

Data collection instrument

Data were collected using a pre-tested, interviewer-administered structured questionnaire. The questionnaire comprised sections on respondents' socio-demographic characteristics and the four domains of health-related quality of life (HRQoL): physical health, psychological health, support and social relationships, and environmental health. The instrument was pre-tested among elderly persons in Uromi, Esan North-East Local Government Area of Edo State, a community with socio-cultural characteristics comparable to those of the study area. The pre-test was conducted to assess the clarity, validity, and reliability of the questionnaire before its use in the main study.

Outcome measurement

Overall HRQoL was assessed using a composite score derived from 93 questionnaire items spanning the four HRQoL domains. Responses indicative of a positive health status or met need were scored as one, while responses reflecting a negative health status or unmet need were scored as zero, in accordance with the scoring system of the parent instrument. Individual item scores were summed to obtain a composite HRQoL score for each respondent. Participants with composite scores below 50.0% were classified as having poor overall HRQoL, whereas those with scores of 50.0% or higher were classified as having good overall HRQoL.

Reliability of the instrument

The internal consistency of the composite HRQoL instrument was evaluated using Cronbach's alpha coefficient. The overall scale, comprising all four HRQoL domains, demonstrated good internal consistency with a Cronbach's alpha of 0.86.

Data analysis

Data were entered and analyzed using IBM SPSS Statistics version 25. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondents' characteristics and HRQoL scores. Associations between socio-demographic variables and overall HRQoL were assessed using the Chi-square test or Fisher's exact test where appropriate. Variables with statistically significant associations at the bivariate level were entered into a binary logistic regression model to identify independent determinants of overall HRQoL. Findings were presented as adjusted odds ratios (AORs) with 95% confidence intervals (CIs), and statistical significance was set at $p < 0.05$.

Ethical considerations

Ethical approval was obtained from the University of Benin Teaching Hospital Ethics and Research Committee with protocol number: ADM/E22/A/VOL.VII996. Written informed consent was obtained from all participants before enrolment, and confidentiality of the information collected was maintained throughout the study.

Results

Socio-demographic characteristics of respondents (Table 1)

A total of 642 elderly persons participated in the study. The majority, 451 (70.2%), were aged 60–74 years,

while 80 (12.5%) were aged 75–79 years and 111 (17.3%) were aged 80 years and above. There was a slight male predominance, with 326 (50.8%) males and 316 (49.2%) females. Respondents were equally distributed between urban and rural communities, with 321 (50.0%) residing in each. Almost all respondents, 637 (99.2%), were uninstitutionalised. Most respondents were married, 503 (78.3%), while 116 (18.1%) were widowed. Among the married respondents, 256 (50.9%) were in monogamous unions and 247 (49.1%) were in polygamous unions. Regarding educational attainment, 269 (41.9%) had primary education, 217 (33.8%) had no formal education, 137 (21.3%) had secondary education, and 19 (3.0%) had tertiary education. The majority of respondents, 599 (93.3%), had ever worked, and among these, 324 (54.1%) were still working. Of those currently employed, 179 (55.3%) earned less than ₦18,000 per month.

Health-related quality of life domains (Figure 1)

The majority of respondents had good health-related quality of life across all four domains assessed. The physical health domain recorded the highest proportion of respondents with good scores, 590 (91.9%), while 52 (8.1%) had poor scores. Similarly, 581 (90.5%) respondents had good psychological health scores and 563 (87.7%) had good environmental health scores. The support and social relationship domain recorded the lowest proportion of respondents with good scores, 470 (73.2%), with 172 (26.8%) having poor scores.

Overall health-related quality of life (Figure 2)

Overall, 630 (98.1%) respondents had good health-related quality of life, while 12 (1.9%) had poor health-related quality of life. The mean composite HRQoL score for all respondents was 39.5 ± 4.2 . Male respondents had a higher mean score (40.4 ± 4.3) than female respondents (38.6 ± 3.9).

Association between socio-demographic characteristics and overall health-related quality of life (Table 2)

The proportion of respondents with good overall HRQoL decreased with increasing age, from 448 (99.3%) among those aged 60–74 years to 105 (94.6%) among those aged 80 years and above, and this association was statistically significant (Fisher's exact = 12.675, $p = 0.002$). Marital status was also significantly associated with overall HRQoL (Fisher's exact = 139.673, $p = 0.001$), with married respondents having the highest proportion of good HRQoL, 502 (99.8%), whereas divorced respondents had the

lowest, 9 (64.3%). Respondents who had ever worked were significantly more likely to have good overall HRQoL than those who had never worked (99.0% versus 86.0%; $\chi^2 = 36.692$, $p < 0.001$). There were no statistically significant associations between overall HRQoL and sex, community of residence, institutional status, educational level, type of marriage, current work status, or monthly income.

Determinants of overall health-related quality of life (Table 3 and Figure 3)

Following binary logistic regression analysis, educational level and work history emerged as independent determinants of overall health-related quality of life.

Respondents without formal education were significantly less likely to have good overall HRQoL than those with formal education (AOR = 0.341; 95% CI = 0.124–0.940; $p = 0.038$). Conversely, respondents who had ever worked were significantly more likely to have good overall HRQoL than those who had never worked (AOR = 64.661; 95% CI = 7.808–535.464; $p = 0.001$). Age, sex, community of residence and monthly income were not independent predictors of overall HRQoL after adjustment. Although institutional status and marital status were included in the regression model, their estimates were unstable because of sparse data and should be interpreted with caution.

Table 1. Socio-demographic characteristics of respondents (n = 642)

Variable	Frequency n (%)
Age group (years) (n = 642)	
60 – 74	451 (70.2)
75 – 79	80 (12.5)
≥ 80	111 (17.3)
Sex	
Male	326 (50.8)
Female	316 (49.2)
Community	
Urban	321 (50.0)
Rural	321 (50.0)
Institution	
Uninstitutionalised	637 (99.2)
Institutionalized	5 (0.8)
Marital status (n = 642)	
Married	503 (78.3)
Widowed	116 (18.1)
Divorced	14 (2.2)
Separated	6 (0.9)
Single	3 (0.5)
Type of marriage (n = 503)	
Monogamy	256 (59.0)
Polygamy	247 (41.0)
Level of education	
None	217 (33.8)

Variable	Frequency n (%)
Primary	269 (41.9)
Secondary	137 (21.3)
Tertiary	19 (3.0)
Work history (n = 642)	
Ever worked	599 (93.3)
Never worked	43 (6.7)
Current work status (n = 599)	
Working	324 (54.1)
Not working	275 (45.9)
Monthly income (n = 324)	
< ₦18,000	179 (55.3)
₦18,000 – 49,999	98 (30.2)
≥ ₦50,000	47 (14.5)

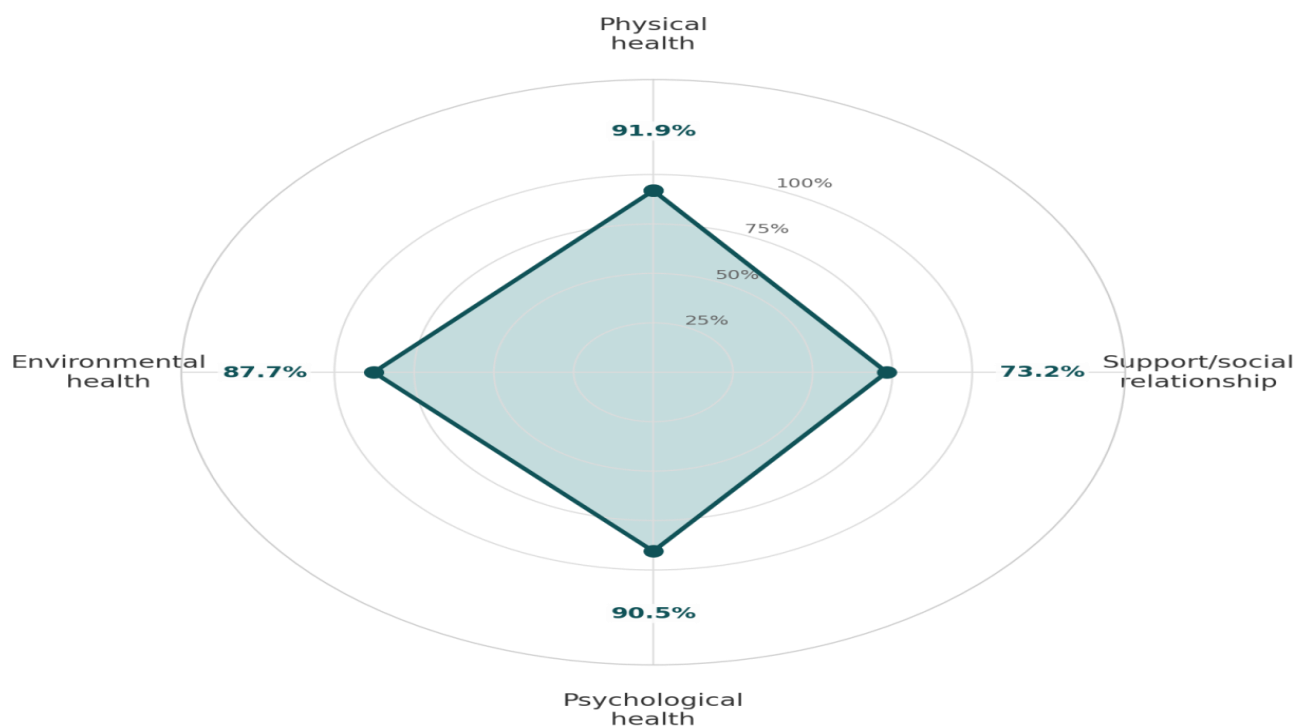


Figure 1. The four domains of Health-Related Quality of Life of respondents, percentage with a good domain score



Figure 2. Composite score of overall Health Related Quality of Life of respondents

Table 2. Socio-demographic characteristics and overall Health Related Quality of Life of respondents

Variable	Good n (%)	Poor n (%)	Statistic
Age (years) (n = 642)			
60 – 74	448 (99.3)	3 (0.7)	
75 – 79	77 (96.2)	3 (3.8)	
≥ 80	105 (94.6)	6 (5.4)	Fisher's exact = 12.675, p = 0.002*
Sex			
Male	320 (98.2)	6 (1.8)	
Female	310 (98.1)	6 (1.9)	$\chi^2 = 0.003$, p = 0.957
Community			
Urban	314 (97.8)	7 (2.2)	
Rural	316 (98.4)	5 (1.6)	$\chi^2 = 0.340$, p = 0.560
Institution			
Institutionalized	5 (100.0)	0 (0.0)	
Uninstitutionalised	625 (98.1)	12 (1.9)	Fisher's exact = 0.096, p = 0.757
Marital status (n = 642)			
Single	3 (66.7)	1 (33.3)	
Married	502 (99.8)	1 (0.2)	
Separated	4 (66.7)	2 (33.3)	
Divorced	9 (64.3)	5 (35.7)	
Widowed	113 (97.4)	3 (2.6)	Fisher's exact = 139.673, p = 0.001*

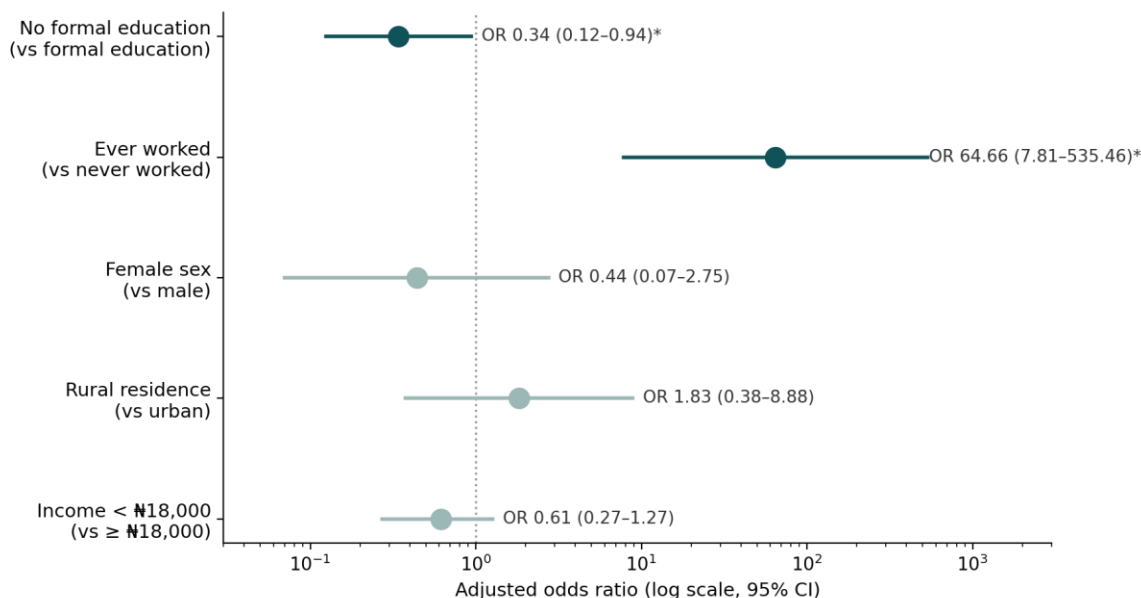
Variable	Good n (%)	Poor n (%)	Statistic
Level of education			
No formal education	211 (97.2)	6 (2.8)	
Primary	263 (97.8)	6 (2.2)	
Secondary	137 (100.0)	0 (0.0)	
Tertiary	19 (100.0)	0 (0.0)	Fisher's exact = 3.950, p = 0.222
Marriage type (n = 503)			
Monogamy	256 (100.0)	0 (0.0)	
Polygamy	246 (99.6)	1 (0.4)	Fisher's exact = 1.131, p = 0.332
Work history (n = 642)			
Ever worked	593 (99.0)	6 (1.0)	
Never worked	37 (86.0)	6 (14.0)	$\chi^2 = 36.692$, p < 0.001*
Current work status (n = 599)			
Working	321 (99.1)	3 (0.9)	
Not working	272 (98.9)	3 (1.1)	$\chi^2 = 0.761$, p = 0.383
Monthly income (n = 324)			
< ₦18,000	177 (98.9)	2 (1.1)	
₦18,000 – 49,999	97 (99.0)	1 (1.0)	
≥ ₦50,000	47 (100.0)	0 (0.0)	Fisher's exact = 0.041, p = 1.000

Statistically significant at $p < 0.05$.

Table 3. Logistic regression for determinants of overall Health Related Quality of Life of respondents

Determinant	B	p-value	OR	95% CI Lower	95% CI Upper
Age (years)	-0.016	0.707	1.016	0.934	1.105
Sex					
Male (reference)			1		
Female	-0.821	0.380	0.440	0.070	2.750
Community					
Urban (reference)			1		
Rural	0.603	0.455	1.827	0.376	8.885
Institution					
Institutionalized (reference)			1		
Uninstitutionalised	16.329	0.999	0.000†	0.000	–
Level of education					
Formal education (reference)			1		
No formal education	-1.075	0.038	0.341	0.124	0.940
Marital status					
Married (reference)			1		
Unmarried	-14.608	0.999	0.000†	0.000	–
Work history					
Never worked (reference)			1		
Ever worked	4.169	0.001	64.661‡	7.808	535.464
Monthly income					
≥N18,000 (reference)			1		
<N18,000	-0.236	0.210	0.614	0.273	1.267
Constant	17.005	0.998	0.000		

Note. Statistically significant at $p < 0.05$. †These two estimates show extreme B and OR values consistent with quasi-complete separation (very few poor-HRQoL cases in the uninstitutionalised and unmarried categories) and should be interpreted with caution rather than as stable effect estimates. ‡Statistically significant but with a very wide confidence interval reflecting a small number of poor-HRQoL cases among respondents who had never worked; interpret the magnitude with caution.



* $p < 0.05$. Dotted line marks $OR = 1$ (no association). Wide intervals for 'Ever worked' reflect few poor-HRQoL cases among those never employed.

Figure 3. Adjusted odds ratios for determinants of overall Health Related Quality of Life (log scale), excluding the two unstable estimates for institutional and marital status

Discussion

This study assessed the health-related quality of life (HRQoL) and its determinants among elderly persons residing in urban and rural communities of Benin City, Edo State. Overall, the findings demonstrated a high prevalence of good HRQoL, with almost all respondents reporting good overall HRQoL. Good scores were also observed across the four HRQoL domains, although the support and social relationship domain had comparatively lower scores than the physical, psychological and environmental domains. Age, marital status and work history were significantly associated with overall HRQoL, while educational level and work history emerged as independent determinants following multivariable analysis.

The high proportion of respondents with good overall HRQoL is encouraging and may reflect the fact that the study was community-based and largely involved elderly persons who were sufficiently healthy to participate. Furthermore, the overwhelming majority of respondents were uninstitutionalised and almost four-fifths were married, suggesting that many continued to benefit from family support and community integration, factors that are known to promote healthy ageing. Similar findings have been reported in community-based studies from parts of Nigeria where older adults continue to live within extended family settings.^{17, 18}

However, the prevalence of good HRQoL observed in this study was higher than that reported in several hospital-based studies and studies conducted in institutional settings, where respondents are generally older, frailer and have a higher burden of chronic illnesses.

Among the four HRQoL domains, the physical health domain had the highest proportion of respondents with good scores. This finding may indicate that many respondents retained functional independence and were able to carry out activities of daily living despite advancing age. Good psychological and environmental domain scores further suggest that respondents generally perceived their mental well-being, living conditions and access to essential services favourably. In contrast, the support and social relationship domain had the lowest proportion of good scores. This finding may reflect the gradual erosion of traditional family support systems resulting from urbanization, migration of younger family members and changing socioeconomic conditions. Reduced social interaction, loneliness and diminished community participation have been identified as important contributors to poorer quality of life among older adults and may explain the relatively lower performance of this domain.

Increasing age was significantly associated with poorer HRQoL at the bivariate level, with respondents

aged 80 years and above less likely to report good HRQoL than younger elderly persons. This finding agrees with reports from several Nigerian and international studies, which have consistently shown a decline in quality of life with advancing age. Progressive physiological changes, increasing prevalence of chronic diseases, declining mobility, sensory impairment and functional dependence are common among the oldest old and may account for this relationship.²⁷ However, age was no longer an independent predictor after adjustment for other variables, suggesting that the influence of age may be mediated through other socioeconomic and health-related factors.

Marital status was also significantly associated with HRQoL, with married respondents reporting better quality of life than unmarried respondents, similar to studies showing that marriage often provides emotional companionship, financial support and assistance with daily activities, all of which contribute positively to well-being in old age. Although marital status did not remain an independent determinant after logistic regression, this finding shows the importance of social support in maintaining quality of life among elderly persons.

Respondents who had ever worked were significantly more likely to have good HRQoL, and work history remained an independent determinant after adjustment. Lifetime employment may improve quality of life by providing financial security, promoting social interaction and fostering a sense of purpose and independence. Individuals who have worked are also more likely to have accumulated assets, pensions or other sources of income that enable them to meet their healthcare and daily living needs during old age. Although the adjusted odds ratio was large and associated with a wide confidence interval, reflecting the small number of respondents with poor HRQoL among those who had never worked, the finding nevertheless highlights the potential long-term benefits of sustained economic participation.

Educational attainment was another independent determinant of HRQoL. Respondents without formal education were less likely to have good HRQoL than those with formal education. Education enhances health literacy, improves access to information and healthcare services, and is often associated with better employment opportunities and socioeconomic status. These advantages may translate into healthier lifestyles, improved disease management and better utilisation of available health services, ultimately contributing to improved quality of life during old age.

Similar associations between educational attainment and HRQoL have been reported in studies conducted among elderly populations in Nigeria and other low- and middle-income countries.

No significant associations were found between HRQoL and sex, place of residence, educational level at the bivariate level, current employment status or monthly income. These findings suggest that, within this study population, social and lifetime socioeconomic experiences may have exerted a greater influence on quality of life than current demographic characteristics. The absence of an urban-rural difference may also reflect similarities in family support systems and access to basic services across the study communities.

Conclusion

The majority of elderly persons in Benin City had good overall health-related quality of life, with favourable scores across the physical, psychological and environmental domains. However, the support and social relationship domain recorded comparatively lower scores, suggesting the need for interventions to strengthen social support among older adults. Age, marital status and work history were significantly associated with overall HRQoL, while educational attainment and work history emerged as independent determinants. These findings highlight the importance of lifelong socioeconomic factors in promoting healthy ageing. Efforts aimed at improving educational attainment, enhancing economic security and strengthening family and community support systems are likely to improve the health-related quality of life of elderly persons.

Limitations

The cross-sectional design of this study limits the ability to establish causal relationships between the identified determinants and health-related quality of life. Information was obtained through interviewer-administered questionnaires and was therefore subject to recall and social desirability biases. In addition, health-related quality of life was assessed using self-reported responses, which may not have fully reflected respondents' actual health status. Nevertheless, the community-based design, adequate sample size and use of a reliable, pre-tested instrument enhance the validity and generalizability of the findings to similar settings.

Recommendations

1. Government should strengthen policies and programmes that promote healthy ageing,

- including the integration of comprehensive geriatric care into primary healthcare services.
2. Community-based interventions should be developed to improve social support, reduce loneliness and encourage active participation of older adults in family and community activities.
3. Programmes that enhance financial security for older adults, including pension coverage, social protection schemes and income-generating opportunities, should be strengthened to improve their quality of life.
4. Health education initiatives aimed at improving health literacy among older adults, particularly those with little or no formal education, should be implemented through primary healthcare facilities and community outreach programmes.
5. Further longitudinal studies are recommended to establish causal relationships between socioeconomic factors and health-related quality of life among elderly populations in Nigeria.

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